

REMARKS

Claims 1-30 are currently pending in this application with claim 16 being amended by this response.

Rejection of Claims 16, 17 and 23-27 under 35 U.S.C. 102(b)

Claims 16, 17 and 23-27 stand rejected under 35 U.S.C. 102(b) as being anticipated by Faroudja.

The present claimed invention discloses a method for processing non-telecined progressive scan video signals. The method includes filtering the signal to produce a filtered signal. The filtered signal is then converted to a lower spatial resolution signal and encoded. The encoded lower spatial resolution signal is then conveyed to an output channel.

Specifically, claim 16 recites:

"A method for processing non-telecined progressive scan video signals, comprising the steps of:
 adaptively filtering said detected signal to produce a filtered signal;
 converting said filtered signal to a lower spatial resolution to produce a lower spatial resolution signal;
 MPEG encoding said lower spatial resolution signal to produce an encoded signal; and
 Conveying said encoded signal to an output channel."

Claim 16 has been amended to clarify the conversion of the progressive scan video signals is to provide a lower spatial resolution signal.

Faroudja discloses system for recording or transmitting 24 or 25 fps motion picture film sources and non-film interlaced or progressively scanned video sources as progressively scanned video at a nominal frame rate of 24 or 25 frames per second. For progressively scanned signals, the signal is low pass filtered. The filtered signal is then down converted in the temporal domain to provide one of a 24 or 25 Hz signal. As stated in column 7, line 59 - column 8, line 3 of Faroudja, "...formats for the

United States include 24 Hz, 30 Hz and 60 Hz progressively scanned video. Such video sources also require vertical low pass filtering and down conversion to provide 525-line or, preferably 625-line 24 Hz progressively scanned video information ... formats for European advanced video formats include 25 Hz, 50 Hz and 100 Hz progressively scanned video. Such video sources also require vertical low pass filtering and down conversion to provide 525-line or, preferably 625-line 25 Hz progressively scanned video information.

This is unlike the present invention as claimed in amended claim 16 in which the spatial resolution of the signal is converted to a lower resolution. The temporal down conversion of Faroudja allows for playback of video sources at their nominal frame rate. The present claimed invention provides spatial compression of video signals thereby reducing the bandwidth requirements of a digital video encoder. This, for example, allows for dual transmission of HD signals on a single channel. The temporal down conversion of Faroudja is for a completely different purpose than the conversion to a lower spatial resolution in the present claimed invention. The conversion to a lower spatial resolution of the present claimed invention is neither disclosed nor suggested by Faroudja and, thus, it is respectfully submitted that claim 16 is not anticipated by Faroudja. As claims 17 and 23-27 are dependent on claim 16, it is respectfully submitted that these claims are also not anticipated by Faroudja for the reasons stated above.

In view of the above remarks and amendments to claim 16 it is respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claims 1-15 under 35 U.S.C. 103(a)

Claims 1-15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Faroudja in view of LeGall et al.

LeGall et al. disclose conversion of a high resolution interlaced format to a lower resolution progressive format as recited by the Examiner in his rejection. However, neither LeGall et al. nor Faroudja (as admitted by the Examiner) disclose or suggest reconverting the filtered signal to the original format of the first signal to produce a reconverted signal as in the present claimed invention.

As both LeGall et al. and Faroudja fail to disclose or suggest reconversion of the filtered signal to its original signal prior to converting to a lower resolution and

encoding it is respectfully submitted that LeGall et al., when taken alone or in combination with Faroudja do not make the present invention unpatentable. In view of the above remarks it is respectfully submitted that Claims 1-15 of the present claimed invention are not obvious.

Rejection of Claim 18 under 35 U.S.C. 103(a)

Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Faroudja in view of Kim.

The rejection contends that Kim discloses the background for the MPEG-2 standard where the MP@HL standard may have as many as 1,152 active lines per image frame and 1,920 pixels per line and the MP@ML standard which defines a maximum picture size of 720 pixels per line and 567 lines per frame. The Examiner further states that Kim discloses the standard for the US having as many as 1,080 lines per frame and 1,920 pixels per line.

Applicants do not understand the reliance on Kim as the conventional MPEG transmission standard having as many as 1,080 lines per frame and 1,920 pixels per line is a well known picture format. However, Kim neither discloses nor suggests the specific combination of a 1080 x 1280 (picture line x picture element) format signal modulating a carrier wave as taught and claimed by applicants.

Therefore, it is respectfully submitted that Kim adds nothing in combination with Faroudja which would make the present invention unpatentable. In view of the above remarks it is respectfully submitted that Claim 18 of the present claimed invention is not obvious and that this rejection should be withdrawn.

Rejection of Claims 19-22 under 35 U.S.C. 103(a)

Claims 19-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lim in view of Kim.

The Office Action advances the following arguments in connection with these grounds of rejection of claims 19-22:

- (a) Lim does not specifically disclose a 1080 line x 1280 pixel (picture element) picture format, but shows various transmission formats in Table 1 and Table 2;

- (b) Lim discloses that the number of active picture lines can vary from those listed (column 8, lines 30-34);
- (c) Lim discloses that various picture formats can be utilized by conserving the number of pixels/sec to conserve bandwidth; and
- (d) Kim teaches that the conventional MPEG transmission standard can have as many as 1080 picture lines x 1920 picture elements/line.

From all these arguments applicants fail to find any direct or indirect suggestion of applicant' specifically claimed 1080 x 1280 picture format.

As to argument (a), Lim simply shows that a format containing 1080 lines is possible and that another, separate, format containing 1280 pixels/line also is possible. Lim offers no motivation to provide applicants' claimed 1080 x 1280 combination. It is noted that Lim is very specific in defining the range of picture format options that are considered available for an HDTV system. Lim's disclosed formats are comprehensively defined by details including frame size (lines, pixels/line), frame rate, scan mode and total pixels/sec. It is also noted that Lim neither offers nor suggests any options to the proposals embodied by his Tables 1 and 2 (except as to argument (b) discussed below).

Considering (b), note that in column 8 Lim simply states that the number of "active lines...can vary from the precise numbers given." (Emphasis added) This contains no suggestion that the number of picture elements (1280 in applicants' claimed arrangements) can vary from the precise numbers given by Lim. Lim also states that "it s preferred that the number of lines be approximately equal (i.e., plus or minus 15%) to the numbers given." (Emphasis added) Here, too, Lim fails to provide the motivation to produce a picture format defined by 1080 lines x 1280 picture elements.

Regarding argument (c), it is true that reducing the number of bits by reducing the number of pixels/line can conserve transmission bandwidth. However, a person skilled in the art would recognize that this is not the only means for conserving bandwidth. Various types of data compression can be used, for example, without reducing pixels. In any case, considering Lim's detailed Tables as noted above, it is not seen where a person skilled in the art find the motivation to reduce the number of pixels/line to produce applicants' claimed 1080 x 1280 format.

As to (d), applicants do not understand the reliance on Kim teaching that “conventional MPEG transmission standard can have as many as 1080 lines and 1920 pixels per line,” since this well-known 1080 x 1920 picture format is also disclosed in Tables 1 and 2 of Lim. Kim does not otherwise suggest applicants’ specifically claimed 1080 x 1280 combination, and fails to provide what is lacking in Lim.

In view of the above, applicant submits that any suggestion that a 1080 line x 1280 pixel picture format would be obvious from Lim alone or in combination with the art of record is clearly based on an impermissible hindsight modification of Lim based on applicants’ teaching. Accordingly, applicants submit that claims 19-22 patentably distinguish over the art of record, and applicants request that the grounds of rejection under 35 USC 103 be withdrawn.

Therefore, it is respectfully submitted that Kim, when taken alone or in combination with Lim do not make the present invention unpatentable. In view of the above remarks it is respectfully submitted that Claims 19-22 of the present claimed invention are not obvious.

Rejection of Claims 28-30 under 35 U.S.C. 103(a)

Claims 28-30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kim.

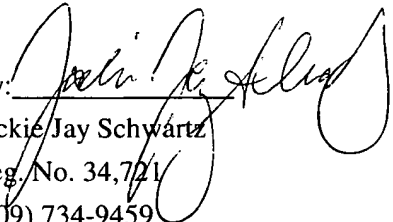
As discussed above, Kim neither discloses nor suggests the specific format of 1080 picture elements x 1280 picture elements for conveying video information as taught and claimed by applicants. Kim only discloses the conventional MPEG transmission standard having as many as 1,080 lines per frame and 1,920 pixels per line which is a well known picture format.

Therefore, it is respectfully submitted that Kim does not make the present invention unpatentable. In view of the above remarks it is respectfully submitted that Claims 28-30 of the present claimed invention are not obvious.

In view of the above-remarks it is respectfully submitted that claims 1-30 are now allowable.

No fee is believed due. However, if a fee is due, please charge the fee to Deposit Account 07-0832.

Respectfully submitted
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Version with Markings to Show Changes Made

IN THE CLAIMS

Please amend claim 16 as follows:

16. (amended) A method for processing a non-telecined progressive scan video signal, comprising the steps of:

adaptively filtering said detected signal to produce a filtered signal;

converting said filtered signal to a lower spatial resolution to produce a lower spatial resolution signal;

MPEG encoding said lower spatial resolution signal to produce an encoded signal; and

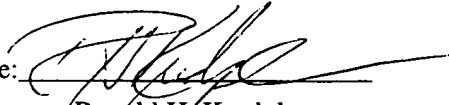
conveying said encoded signal to an output channel.

Certificate of Mailing under 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in a postage paid envelope addressed to: Assistant Commissioner of Patents and Trademarks, Washington, D.C. 20231 on the date indicated below.

Date: January 11, 2002

Signature:

A handwritten signature in black ink, appearing to read 'R. Kurdyla', written over a horizontal line.

Ronald H. Kurdyla

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